

Citrus Industry



THOMAS W. BRYANT

Member Florida State Plant Board

May

July, 1940

Vacation *on the Farm!*



Is Something Often Discussed But Seldom Experienced

For years Florida growers have given unremittingly of their time and effort to provide the world with food and fruit so badly needed, and now that the war is over the job still remains just as vital as during the most critical days of the war.

The need for citrus fruit, vegetables and meat is just as urgent today as it has been for years . . . and Florida growers will have little time for vacations until this need is supplied.

Our X-Cel Program has provided many Florida growers with the most satisfactory answer to many of their production problems, enabling them to develop bigger and better crops of citrus, vegetables and beef.

Our field service department will gladly outline this program to you without obligation.

X-Cel Retail Stores are conveniently located at Orlando, Winter Haven, Plant City, Sanford, and on East Broadway in Tampa. We invite you to trade with these friendly efficient merchants.

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X-CEL FERTILIZERS
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Is Our System Of Federal Plant Quarantine Enforcement Adequate?

Authority to regulate entry of plants and plant products from foreign countries is vested in the Secretary of the United States Department of Agriculture under the provisions of the National Plant Quarantine Act of 1912.

Briefly, and in part, the Act of 1912 delegates to the Secretary of Agriculture the authority to (1) issue permits for the importation of nursery stock; (2) inspect and safeguard nursery stock from countries lacking an official system of plant inspection and certification, and (3) determine and bring under permit and inspection requirements plants and plant products not covered by the definition of nursery stock with respect to which particular pest risk is involved.

To the uninformed it might appear that the authority thus delegated to the Secretary is sufficient to enable him to effectively close all avenues for the entry of foreign plant pests. This is not the case. It is mandatory for the Secretary to issue permits to import from countries where official systems of inspection are established, provided each package is accompanied by a certificate issued by the proper official of country of origin to the effect that the material has been inspected and is believed to be free of pests, and provided that the shipment is otherwise in compliance with certain conditions and regulations.

The Secretary does have authority to forbid entry of plants and plant products likely to introduce into the United States any disease or insect new to or not widely distributed in this country. Several prohibitions of this nature are now in effect. It should be noted, however, that this does not extend to all insects and diseases, but only to those new to or not widely disseminated in this country. This is in decided contrast to the policy adopted by state nursery inspectors throughout the United States, who insist that plants sold to their citizens be healthy and free from insects and diseases of ALL kinds.

In order to make effective the provisions of the Act of 1912 as

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Plant Commissioner, State Plant Board, Paper read at Florida State Horticultural Society Meeting, Miami, Florida, April 30-May 2.

applicable to nursery stock, the Secretary of Agriculture on November 18, 1918, promulgated the nursery stock, plant, and seed quarantine known as Quarantine 37. For enforcement purposes, plant material likely to be affected was enumerated under several regulations, which, in general, are as follows:

Regulation 2. Plant products capable of propagation, but imported for food, medicinal or manufacturing purposes, except those regulated by special quarantines, are admitted into this country without permit.

Regulation 3. Bulbs, corms or root stocks, cuttings, scions and buds of fruit or nuts; rose stocks; nuts; and seeds of fruit, forest, ornamental and shade trees, and others, provided they are free of pulp may be imported under permit and without limitation as to quantity or use, from countries unable to furnish this service, importations may be made under permit and in limited quantities for public service purposes only.

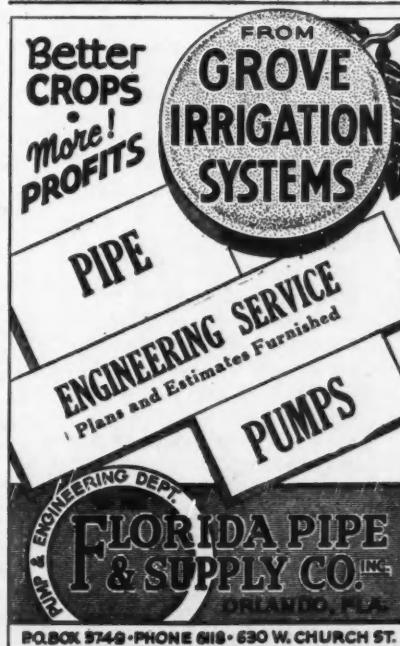
Regulation 14. Provision is made herein for import, in limited quantities and under special permit, of plants not otherwise restricted for the purpose of keeping the country supplied with new varieties or necessary propagation stocks.

Several years ago the Secretary was advised by the Solicitor of the Department of Agriculture that the authority to "prescribe" conditions and regulations governing the issuance of permits to import as provided in the Act of 1912 must deal with matters and things bearing on such importations before the nursery stock is actually imported, and the law does not seek to control or enforce any regulations on plants after their entry, other than those relating to interstate movement. It became necessary, therefore, for the Secretary to rescind all require-

ments as to quantity limits and post-entry restrictions.

As a result, the country has for several years been wide open to a flood of imported plants, together with such insects and diseases as may be present, from countries that maintain an official system of inspection. Officials of the Department may dispute this statement and claim that such arrivals are inspected and, if necessary, treated upon arrival in this country. I claim—and I believe that well informed state quarantine officials will support me—that with the personnel and facilities available the the Department cannot safeguard shipments consisting of thousands, even hundreds of thousands, of plants. Nursery stock released by the Department after inspection may be affected with obscure, unknown or undetectable insects and diseases whose presence cannot be discerned by port of entry inspection. Plants infested with insects known to be present in this country, but not considered as especially injurious, are released. Department officials claim that in such instances

(Continued on page 7)



Fertilizer Industry Pledges Increased Help To Farm Food Program

French Lick, Ind.—Responding to a special message from President Harry S. Truman, representatives of The National Fertilizer Association have pledged increased help to farmers in the production of more food to satisfy needs both here and abroad.

The fertilizer industry, which in 1945 increased by 80 percent the output of production over prewar years, will lend every effort to meeting this responsibility, Maurice H. Lockwood, president-elect of the NFA, told delegates to the association's 21st annual convention here.

President Truman's message emphasized "the special role which your Association and industry have to play in increasing America's food production." Although we should maintain our own high standards of living, he said, we should alleviate the burden of want and suffering which encompasses the earth.

The text of the President's letter:

"On the occasion of the twenty-first annual convention of the National Fertilizer Association, it gives me great pleasure to extend to you and to your members a few words of greeting.

"I have, of course, a genuine interest in the well-being of American business of which your own industry is an important unit. But, in addition, I would like to emphasize the special role which your Association and industry have to play in increasing America's food production. Never in our history has the need been more urgent. Abundant food is needed at home; it is cried for by the desperately hungry in other lands. Every instinct of compassion demands that we furnish all we can to our starving brethren.

"To maintain the high standard of living which prevails in this country; to alleviate, wherever we can, the burden of want and suffering which encompasses the earth —these are tasks to which you and I and all other Americans should rededicate ourselves in the days ahead."

The text of the reply from NFA's President-elect Lockwood:

"We acknowledge with hearty

thanks your letter, saluting The National Fertilizer Association on the occasion of its twenty-first annual convention.

"We are deeply aware of the responsibility which falls upon our Association and our industry to help

increase America's food production. We pledge every effort to continue and improve upon the impressive record already made. Under adverse emergency conditions, including shortages of materials, transporta-

(Continued on page 13)



ZINC
IRON
MANGANESE
MAGNESIUM
COPPER

Compare RESULTS...

The Naco Program, used by so many Florida growers for years, has consistently kept their groves in more vigorous health and greater productivity. Growers report that many of these groves have never required a special "shot" of any one element in all these years.

THE REASON . . . In every bag of NACO 5-STAR Brands there is a balanced ration of the minor elements* in addition to the primary elements. Next time order NACO 5-STAR Brands and get them all in this BALANCED fertilizer.

Because there is such a wide variety of VOLCK Oils you can always find one that will meet almost any spraying need, whether it be an ordinary spray job of light concentration or a heavy dosage requiring the ultimate in killing power and factors of safety.

Too often, growers feel that the spraying of fruit is necessary only to produce bright fruit. Even in this day when the bulk of the Florida crop is going into cans, the grower needs oil to protect his trees and to assure a crop for the next season.

*NACO 5-STAR BRANDS contain a balanced ration of these elements: Zinc, Iron, Manganese, Magnesium, Copper, PLUS Borax.

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FLORIDA . . .**

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Issued Monthly

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Florida Horticultural Research . . .

Florida with its vast commercial acreages of vegetables, fruits, nuts and flowers, coupled with its wide variety of plants grown as ornamentals for beautification or aesthetic purposes, has attained a highly specialized and yet diversified horticultural leadership. The State's agricultural income is preponderantly from its numerous horticultural products which account for something like three-fourths of the total return from all agricultural activities, the per-acre incomes from these crops compare most favorably with that of the high-bracket income farming areas of the nation.

Paradoxical as it may at first appear, of this State's great number and variety of horticultural crops now cultivated commercially, only one, the blueberry of the extreme northwestern counties, is a native Florida plant. Unlike some South American areas which lost the production of their own native rubber and cinchona to the Far East, Florida has not lost to other areas but instead has obtained its cultivated crops from almost worldwide sources. Some examples would include:

The potato, by way of Europe, from Peru, Bolivia and Ecuador;

The pineapple from Paraguay and southern Brazil;

The guava and avocado from Mexico, Central America and north-

HAROLD MOWRY

Director, Florida Agricultural Experiment Station, at Meeting of Florida State Horticulture Society

ern South America;

The bell pepper from Central America;

The citrus fruits mainly from the Orient by way of Europe and West Indies;

The watermelon from Africa, and many of the vegetables from the Old World;

The tung tree from China; and Gladiolus from Africa and the Mediterranean.

The successes attained in Florida with these and other plants of foreign origin are probably best demonstrated by citing a year's total packed value of some horticultural crops. For the 1944-45 season this value was over 200 million dollars for citrus, 8 millions for non-citrus fruits and over 92 millions for vegetables. The figure does not include the several millions derived from pecans, tung oil and commercial ornamentals and flowers.

For outstanding food production, mostly horticultural crops, the United States Department of Agriculture bestowed the Agricultural "A" award to four Florida counties and 14 Florida food processing firms. Production has steadily

been increasing; the 100 million box citrus crop is not far in the future and the State ranks first of the Southeastern States in vegetables grown.

All of this introduction, adaption and production just didn't happen of its own accord. Although Florida's discovery was in the year 1513, it has only comparatively recently attained its enviable horticultural standing. Its sandy soils are not noted for their natural fertility and plants do not always easily adapt themselves to a new environment. Seasonal conditions are different and general climate factors militate against the success of many fruits and vegetable varieties from more temperate regions, and occasional frosts prevent the growing of many plants with tropical requirements. However, the most is being made of Florida's climate, the nearest to the tropical of any in the continental United States, and with this greatest asset has been built a huge winter vegetable and flower industry and the world's greatest citrus area.

No small part of these successes is due to agricultural research by State and Federal agencies, as well as by individuals, and to the alacrity with which the Florida horticulturist accepts and puts into practice research findings. It has

(Continued on page 12)

Relation Of Nitrogen Used To Citrus Production....

In November 1945 Mr. W. C. Pedersen, President of Waverly Growers Cooperative, referred to the writer a letter from the "Field Manager" of a large California Cooperative reading as follows:

"We have heard some very interesting stories about your recent fertilizer programs and are much interested in getting some facts on some of your higher producing groves, particularly with reference to the use of nitrogen, and if it is not too much trouble, I would like to know how many pounds of nitrogen per year per tree are used on high yielding groves and also on medium yielding groves, both on oranges and grapefruit.

"In order that we will understand these figures, we commonly figure the total nitrogen per tree as the product of the total number of pounds of fertilizer, multiplied by the percentage of nitrogen in the fertilizer. If it is more convenient for you to give us the number of pounds used and the analysis of the fertilizer, it would be just as satisfactory.

"Thank you very much for your courtesy."

To this the writer replied:

"Mr. W. C. Pedersen referred

FRANK M. O'BYRNE

Production Manager, Waverly
Growers Cooperative, Waverly,
Florida

your letter of November 9th to me for reply. I have worked up information on eight groves which you will find listed on the attached sheet.

"Our fertilizer program is about as follows. In January or early February we apply a good heavy application of Nitrate of Soda, Nitrate of Potash or a similar Top Dresser. In April or May we give an application of 5-6-10-2-½-½ and if we have very heavy rains in the summer, we give a supplemental application in August of Nitrate of Soda or Ammonium Nitrate. We did this just one year in the three reported on. Then, in October or November we give another application of 5-6-10-2-½-½.

"There are complicating factors. Our last crop was cut nearly in half by the severe hurricane of October 19, 1945. Some years our crops are hurt by droughts. Some of our groves are irrigated and some are not. I have indicated those which are irrigated whenever they need

it by "R" and those irrigated very occasionally by "O".

"Another factor to consider is what application of fertilizer produced this year's crop. Our Experiment Station says that this year's crop was affected more by last year's fertilizer than that applied this year, but it is also affected by both care and fertilizer for a number of preceding years.

"I would list the groves reported on about as follows:

Owner O. C. V. (Home, Irrigated R, Approximate Age, 30 years old, Rating, Excellent.

Owner O. C. V. (Bettes) Irrigated, O, Approximate Age, 30 years old, Rating Good.

Owner P. & P., Irrigated R, Approximate Age, 30 Years, Rating Fair.

Owner Mrs. A. Y., Irrigated O, Approximate Age, 30 years old, Rating Excellent.

Owner A. M. Y. Irrigated O, Approximate Age, 30 Years, Rating Excellent.

Owner H. O. Y. Irrigated R Approximate Age 30 Years, Rating Excellent.

Owner F. M. O'B (F-42) Irrigated R, Approximate Age 24 years old, Good.

	O.C.V. Homes	O.C.V. Bettes	P. & P.	Mrs. A. Y.	A. M. Y.	H. O. Y.	F. M. O'B F-42	F. M. O'B Alcoma	
Season	Nit Boxes	Nit Boxes	Nit Boxes	Nit Boxes	Nit Boxes	Nit Boxes	Nit Boxes	Nit Boxes	
1942									
Gft.	43	5.17 15.5	4.15 10.4	3.62 7.0	4.19 13.01		3.94 8.4	3.72 9.0	2.50 4.8
E. Org.	43	3.13 8.0		2.20 4.7		1.22 4.6*	2.46 8.2		1.60 4.1
Val. Org.	43	2.88 7.5	2.77 7.7	1.78 5.7	2.10 7.0	2.19 7.5	2.00 6.8	2.42 4.7	1.50 4.0
1943									
Gft.	44	6.00 6.4	4.46 4.5	4.35 7.7	4.80 14.8		4.40 9.5	3.79 8.6	3.13 6.2
E. Org.	44	3.81 7.		2.62 4.0		1.96 4.1*	2.55 7.6		2.06 4.3
Val. Org.	44	3.28 4.6	2.08 5.3	2.21 4.3	2.55 6.0	2.78 6.8	2.00 5.6	2.13 4.2	1.91 3.5
1944									
Gft.	45	5.55 11.0	5.17 6.2	4.55 .66	4.20 6.6		4.55 3.—	5.69 5.	4.76 1.7
E. Org.	45	3.40 6.6		2.80 2.5		2.36 1.8*	2.90 3.9		2.51 2.5
Val. Org.	45	3.15 7.1	2.71 5.3	2.70 1.1	2.55 2.8	3.41 4.2	2.65 3.88	4.14 6.5	2.28 2.0

	Pounds Nitrogen Boxes Fruit							
Gft	16.72 32.9	13.78 21.1	12.52 15.36	13.19 34.4		12.89 20.9	13.20 22.6	10.39 12.7
E. Org.	10.34 21.6		7.62 11.2		5.54 10.4*	7.93 19.7		6.17 10.9
Val.	9.31 19.2	7.51 18.3	6.69 11.1	7.20 15.8	8.38 18.5	6.65 16.28	8.69 15.4	5.69 9.5

*Temple Oranges

A severe hurricane on Oct. 19, 1944 reduced this year's crop about as follows: M. S. Gft. 90 per cent, E. Gft. 60 per cent. E. Orgs. 50 per cent. Val. 20 per cent.

Owner F. M. O'B. (Alcoma) Irrigated 0, Approximate Age 20 years old, Rating Good.

"A box of grapefruit weighs about 85 pounds and a box of oranges about 90 pounds if you want to convert these figures into pounds.

"It looks as if we should expect to get about two boxes of fruit for each pound of nitrogen applied. I do not believe that this would follow if we would double the amount of nitrogen applied. Also, if we reduce the Potash and Phosphoric Acid applied, I do not believe we would get as much fruit as we do now.

"I wonder if you will give us some figures on some of your groves."

The California Field Manager replied:

"Thank you very much for your informative letter regarding citrus fertilization. This sort of information is much more valuable than most of the generalizations we get from both California and Florida.

"In answer to your question for some similar information, I am sorry to say that at present we do not have the data at hand. I would say that the average use of nitrogen by better growers in California is very similar to that you report, with 2.5 to 3 pounds per tree per year average on oranges. As in your case, some growers use 4 or 5 pounds or more, with better yields reported in most cases.

"We do not use as much more on grapefruit as you indicate, but neither do we get the yields you do.

"It is doubtful if we get the average yield per tree that you indicate in response to nitrogen used. Your figures indicate an average for all varieties of just about .5 pound of nitrogen per field box of fruit for the groves listed. I believe we get about 60 to 70 percent of this efficiency, figuring the same weight of fruit, on our older groves. Some of our younger groves will easily equal 100 percent of these figures, or better.

"Again I want to thank you for your courtesy."

It will be noted in the above figures that as the amount of nitrogen was increased the yield increased. We tried to select groves on comparable soils. No records compiled were rejected. The nitrogen in the mixed fertilizer was about 1 percent from organics and the balance equal parts of Nitrate and Ammoniacal Nitrogen. The

fertilizer elements are listed in the following order: Nitrogen, Available Phosphoric Acid, Potash, Magnesium Oxide, Manganese and Copper. The last two are used as Sulphates but calculated to the Oxide.

It seems that within reasonable limits the more nitrogen you use the larger your yield is apt to be.

IS OUR SYSTEM OF FEDERAL PLANT QUARANTINE ENFORCEMENT ADEQUATE?

(Continued from page 3)

it is up to the state inspectors to give such treatment as may be deemed desirable. But officials are without authority to handle plants entered under permit until after they have been delivered by the transportation company to the addressee. It would appear that the federal government is without authority to properly regulate entry of foreign plants so as to prevent entry of foreign plant pests, and at the same time will not permit state officials to take proper action.

This condition with respect to lack of authority delegated to the Secretary of Agriculture may be corrected to a certain extent through adoption by Congress of Senate Bill 1990 recently introduced by Elmer Thomas of Oklahoma, Chairman of the Senate Committee on Agriculture. This Bill, if enacted will provide authority to limit entries of nursery stock to quantities required for propagating purposes; to require that such stock be grown under quarantine until such time as it has been determined that it is free from plant pests; and, in the event the imported stock is affected with plant pests, to prescribe such treatments as may be deemed necessary.

I strongly urge that the members of the Florida State Horticultural Society, individually and collectively, communicate with their representatives in Congress and insist that they take aggressive action to the end that this amendment be enacted into law. Copies of this Bill have been handed to your President and Secretary.

Enactment of this Bill into law will not in itself close the doors to entry of additional foreign plant pests. Trade follows the flag, and insects and diseases affecting man, animals, and plants follow the trade routes. Florida today is at the threshold of a great expansion of international traffic, particularly by air. Unless there is close collaboration and cooperation between Flor-

ida growers on one hand, and those interested in the development of our tourist and commercial industries on the other, the doors will remain open to invasion by alien plant pests. Agriculture and tourists are Florida's chief sources of income. The more we do to expand our agricultural and horticultural industries, the more attractive our state will be to tourists. The contrary is not true, for when we try to extend our tourist industry by making concessions with respect to our plant quarantine regulations so as to remove what tourists and their supporters consider as unnecessary irritations and delays due to so-called red tape, the well-being of our growers is likely to be adversely affected. Yet there is a constant demand on the part of certain transportation officials and representatives of tourist agencies and communities that our regulations be revised in favor of the tourist. For several years your Plant Board has been fearful of the introduction of some major plant pest as a result of the great expansion in air traffic. Our records show the interception of hundreds of foreign fruits infested with fruit flies and other destructive plant pests. The belief held by public health officials that the danger of an airplane-borne epidemic is real and imminent is substantiated by a recent outbreak of smallpox in a western city that was traced to a soldier just back from Japan. There can be no question of the need for revision of both plant quarantine and public health regulations. But the changes should be upwards, not downwards, even though such action may result in some loss in or annoyance to our tourist trade.

Local chambers of commerce and civic clubs are constantly seeking to improve the economic condition of their communities through the addition of new industries. At the present time there is considerable interest in the designation of certain interior cities as ports of entry for foreign aircraft. I doubt if these public-spirited citizens have stopped to consider the financial advantages likely to accrue from the establishment of such enterprises against the possible economic losses that may result to their agricultural back country through the introduction of foreign pests affecting man, animals, and plants. They should at least make inquiries of proper officials as to whether the state and

(Continued on page 11)

Quality Fruit For Canning....

"I know that this crop is not fit to ship. But what difference does it make? I'll sell it to the Cannery anyway."

How many times during a season do you hear something like this? The idea seems to be prevalent that fruit that isn't good for anything else is good enough for canning.

The Canners may be, in part, to blame for the failure of the growers to realize that good canned or frozen fruit products can come only from good fruit. When the canning of citrus fruit was started the main idea was to salvage fruit that would otherwise be dumped in the woods to breed flies. Dropped fruit, picked up from under the trees, and culls from the packing houses were the principal sources of supply. There were no chemists in the canneries and there was no thought of quality control to see that products were fit for human consumption. Under these conditions it is not surprising that a salvage complex developed and the idea became firmly fixed in the minds of the growers that cannery fruit was only that part of the crop which could not be disposed of in any other manner.

There are still those who contend that good fruit ought to be shipped as fresh fruit, even when the market is glutted and the price of fresh fruit is less than the canner is willing to pay. They argue that the packing house is under obligation to keep the fruit dealers in the North supplied with fruit, regardless of the net return to the grower. When I get out of bed in the morning I put a sock on the right foot first. Then I put on the left sock, then the right shoe, then the left shoe. I do this without thinking. It is a habit. If I put on the left shoe first the routine of dressing is disturbed. I must stop and think. Thinking is an effort for most of us. We turn over to habit the details of our daily lives. It is better so. We do not have time to think of our every action. We drive a car up to a corner and, suddenly, another car swings in front of us. If habit does not instantly apply the brakes we are in a wreck. We

BY GRAY SINGLETON

do not have time to consider the matter and reason that the proper procedure would be to press the brake pedal with the right foot.

But we do have time to reason the matter of cannery fruit to a logical conclusion and not continue to blindly follow mental habits acquired years ago, under a very different set of conditions. It has been said that, at the start of each new war, our generals and admirals are prepared to fight the last preceding war but are never prepared for the new set of conditions which arise with each new war. There are new conditions in the packing houses and canneries. During the recent war the Government stepped in and took the output of the canneries for our armed forces. New standards were set up and laboratories were established to check

the products and see that nothing but good, clean food was furnished to our fighting men and women. Dropped fruit, picked up under the trees, was out. It was found that fruit lies on the ground only a few days before it is invaded by nematodes. Millions of these tiny worms are everywhere in the soil. They like fruit. When an orange or grapefruit falls on the ground it is soon infested. Uncle Sam said he didn't want these worms in the juice sent to the boys. He didn't want juice made from split fruit that had stood on the packing house platform for two or three days while gnats and flies laid eggs in the splits and hatched out worms. He set up standards for the kind of juice he wanted, good clean juice, and got it.

Then the war was over and the Food and Drug and Cosmetic Administration took the position that



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civilians, especially babies, deserved just as clean food as soldiers. Most of the Canneries had established laboratories and employed chemists during the war and were glad to co-operate with Food and Drug to see that civilians got this good, clean juice that the Armed Forces had demanded. They had found that there is a vast improvement in the taste and keeping quality of the products made under the new standards. The civilians responded to the better juice by buying three times as much during the past season as they had ever bought in any year before the war. But there are growers who think that canners should still buy drops and split fruit. They forget that good, clean juice is what made an unheard of market for their good fruit during the past few years.

But the grower who needs most to change his mental habits is the one who argues that the canner should pay just as much for rusty, melanose crusted fruit as for the clean bright product of the careful growers. This season many canners were accused of everything from favoritism to murder because they would pay one grower \$2.00 per box for his fruit and would pay his neighbor across the road only \$1.00. There are growers who do not believe in newfangled ideas like secondary elements and nutritional sprays. One such grower, this year, told me very bitterly that we were no better than a set of thieves. We had told him that we didn't want his fruit at any price. He swore that his fruit was good enough for any cannery. In fact, he said that he had grown it especially for cannery sale. I tried to show him that his fruit was "sharkskinned" and covered with melanose. It could not be peeled for sectionizing and was so covered with scale that it could not be cleaned in the washer. Had we run it into the juice extractors the scale insects would have come off of the fruit and gotten into the juice. The strainers would take out the shells but the insects would go through into the cans. I suggested that he go to the Experiment Station at Lake Alfred and see the demonstration plots which would show him how to get rid of the "ammoniation" or copper deficiency that made a lot of his fruit unfit for canning. That was a mistake. It is never safe to even imply criticism of a man's horse, his dog, his wife or his grove practices. He

cussed me out and said he didn't need any long-haired professor to tell him how to raise fruit and everything would be all right if the canners would quit trying to steal his fruit and pay everybody the same price.

The coming season will probably see a good market for sectionizing fruit at a price considerably higher than for juice fruit. With rusty fruit the albedo, or white part of the rind, sticks to the membrane of the section and cannot be removed without destroying the section. Rusty fruit tends to remain too small for sectionizing and "ammoniated" fruit is too small.

The standards set up by the Agricultural Marketing Administration fixed certain limits for grade "A" juice, or U. S. Fancy grade juice, as to brix and acid. Using rough lemon root-stock, on Norfolk sand, it is difficult to meet these

standards without using the so-called minor elements. If the Brix or acid is too low the juice may be graded down to "C" and will have to be sold at a reduced price. Most canners do not want this low-grade juice at any price. It has a flavor like a good grade of dishwater and will ruin any brand under which it is sold.

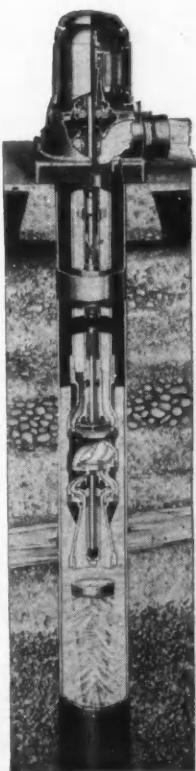
The Canner can not improve the juice after it comes into the cannery. That job is up to the grower. If good fruit comes to the cannery, good juice will go to the breakfast table where the final decision is made. If the juice is good there will not be enough fruit to supply the demand. If it is low-grade juice, made from inferior fruit, the public demand will turn to tomato juice, pineapple juice or apple juice and the Citrus grower will be unable to pay his fertilizer bills.

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TWO GREAT LEADERS PASS

The month of June witnessed the passing of two prominent leaders who had long been connected with the citrus and other horticultural interests of Florida, men who had devoted the major portion of their lives to the study and promotion of agriculture, each in his separate and important field.

On June 17, L. M. Rhodes, who had retired just ten days earlier, died at his home in Jacksonville. For nearly thirty years he had served as Marketing Commissioner for Florida—a period longer than any other commissioner in the United States. During all these years he had been an indefatigable worker in the field of agricultural marketing and he enjoyed the personal acquaintance and high regard of probably more growers than any other man in the state.

A native of Tennessee, he had been president of the Tennessee Farmers Educational and Cooperative Union before being appointed Florida Marketing Commissioner in 1917. He was one of a committee of three which drafted the bill establishing the United States Bureau of Markets, which has branched out into many divisions under the Department of Agriculture. He organized the National Association of Marketing Officials in 1919, had filled every office in the Association and became its only honorary president for life.

The death of Dr. Rhodes is a distinct loss to the horticultural and agricultural interests of Florida.

On June 6, aged 71 years, J. R. Watson, entomologist with the University of Florida Agricultural Experiment Station, died in a Gainesville hospital after a brief illness.

In point of continual service, he was the oldest member of the Experiment Station staff and fifth oldest member of the University of Florida faculty.

During the 35 years that he served as the head of the Experiment Station entomology department he played a leading role in the battle of Florida growers against insect pests. His work in developing controls for root-knot nematodes, in introducing natural parasites of citrus pests, and in identification and classification of thrips and other insects won him national and international recognition in the field of entomology. He was the author of numerous articles, many of which have ap-

peared in the columns of this magazine.

He was consulted by thousands of Florida citrus and vegetable growers for advice in the control of insect pests and he was generally recognized as the dean of Florida entomologists.

Florida citrus growers and other agriculturists have sustained a direct and lasting loss in the passing of these two outstanding leaders.

RETIREMENT PLAN OBSERVES ANNIVERSARY

On July 1, 1943, the Dr. P. Phillips Co., Inc. inaugurated a retirement plan for the protection of the several hundred workers employed by the concern. On July 1, 1947, the Company will appropriately observe the third anniversary of the inauguration of the plan.

In speaking of the plan Dr. Phillips said: "Security of the individual in old age is more important than the atomic bomb to the saving of our democratic way of life." He also stated that the retirement system has contributed much to the satisfaction and esprit de corps of his employees. "The prospect of a pension takes a big load off the worker's mind and makes him more efficient. In dollars and cents, our pension system is a sound business proposition," he said.

Under the retirement plan, both the employee and the employer contribute to the fund which assures an annuity for life. The retirement plan is available to all employees of the company who have been with the concern for more than one year. The plan seems to be working as well with this citrus concern as with other employers of great numbers of workers who have adopted similar systems of retirement pay.

Zach Savage, Economist of the Florida State Agricultural Extension Service, says that improved cultural practices have resulted in a great increase in citrus production per tree and a vast improvement in the quality of fruit. He estimates that the 1944-45 crop of citrus of all kinds, oranges, tangerines and grapefruit, was 20,000,000 boxes greater than trees of the same age would have produced in the period from 1931 to 1938. Improvement in fertilizer and irrigation practices is given credit for the major part of the increase in production and quality of the fruit.

Reports from the groves indicate that trees are in excellent condition generally and that the bloom has been satisfactory. Some of the early set fruit dropped during the dry weather of the early spring days where groves were not irrigated, but in most sections the "rainy season" started early in May, and in all sections by the middle of the month, since which time there has been but little dropage. At the present time the prospects are most favorable for a satisfactory crop of quality fruit.

**TISSOT NAMED ACTING
HEAD OF EXPERIMENT
STATION ENTOMOLOGY**

Dr. A. N. Tissot has been appointed acting head of the entomology department of the University of Florida Agricultural Experiment Station, succeeding the late J. R. Watson, according to an announcement by Station Director Harold Mowry.

Dr. Tissot's appointment was approved by the State Board of Control at a recent meeting.

The new acting head of the station's entomology department is a native of Ohio and holds the bachelor of science, master of science, and doctor of philosophy degrees from Ohio State University. He came to the Florida Experiment Station in 1925 and has been a member of the entomological staff since that year.

**IS OUR SYSTEM OF FEDERAL
PLANT QUARANTINE
ENFORCEMENT ADEQUATE?**

(Continued from page 7)

federal governments are in a position to furnish adequate safeguards that would reduce such risk to the minimum. But at times promoters of such enterprises become resentful of what they believe to be interference and lack of cooperation on the part of quarantine officials who cannot, because of lack of finances and personnel, support them.

During the month of March our inspectors boarded 467 water—and 2,022 aircraft from foreign countries, and inspected the cargoes, stores, and baggage carried thereon. Two hundred and twenty-nine specimens of insects and diseases from plant material brought in from 37 foreign countries were collected and sent to Gainesville for determination. Fruit fly larvae (*Anastrepha* spp.) were intercepted on five different occasions during the month. The bulk of the ships and airplanes arrived at Miami. At West Palm Beach 205 Army airplanes were boarded. The Army airfield at Orlando has been closed to foreign planes, and the number of service craft landing at Tampa has fallen off since the war ended. At Pensacola our inspector has been busy supervising the treatment with live steam of sand and soil carried as ballast by ships from Europe. At Jacksonville the time of the inspectors was devoted to

checking the movement of nursery stock moved in from other states.

Plans for increased air and water communications between Florida and foreign countries to the north are a matter of concern to the members of the State Plant Board. A dock has been constructed at West Palm Beach for the use of a ferry with a capacity of 26 freight cars that will operate between that place and Havana. We are informed that another ferry will operate between Key West and Havana. This will be able to carry 230 automobiles and a number of trailers on each trip. As previously stated, citizens of several towns are working towards the designation of their communities as ports of entry for the use of international air traffic. There are now airlines operating some fifty to sixty planes

per day between Florida and foreign countries. Several domestic airlines have indicated their desire to expand into foreign trade. Competition will be keen. New sources of cargo must be found for the planes on their return trips, and fresh fruits and cut flowers from the tropics are of financial interest to the freight traffic managers.

The barriers in the form of oceans that in the past prevented or retarded dissemination of plant pests from one country to another have been wiped out by the airplane, and Florida is exposed on three sides to invasion by alien plant pests. The task of repelling such invasions is a formidable one. The State Plant Board cannot carry on the fight without the help and cooperation of the growers and business interests in our state.

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**FLORIDA HORTICULTURAL
RESEARCH**

(Continued from page 5)

been well said that research is vital to the advancement and prosperity of agriculture. In no area has this been demonstrated to a greater degree than in Florida. Problems of soils, of variety adaptation, of cultural management, of nutritional requirements, and of control of an exceptional number of insect pests and diseases have had to be overcome to a large degree almost completely before the crop could be said to be a success. And with many plants, differences in soil types have necessitated special or modified treatment, particularly with respect to variety, fertilizer needs and disease susceptibility.

Perfection never has and never will be achieved. To maintain even our present horticultural status requires constant vigilance and continued improvement. To illustrate, consider the names of the major vegetable varieties of 15 years ago with those of today as well as the nutritional practices. Varieties superior in yield, quality, marketability or disease resistance have replaced a large number of the "best" ones of that day. For example, in potatoes the varieties Sequoia, Pontiac and Sebago largely have taken the place of the older varieties with progressively heavier and more satisfactory yields. Celery plantings have profited by the introduction of the Pascal variety. Introduction and breeding of tomato varieties resistant to nailhead rust and wilt have prevented the former heavy losses from these diseases and an extensive breeding program is producing varieties having needed characteristics. Watermelon wilt is being overcome by breeding resistant varieties as is also the Phomopsis blight of eggplant. Introduction of the Tendergreen bean filled a definite varietal need as has also the development of the Florida Belle. A new round-podded bean, the Dixie Belle, is just being released and it appears to be a valuable addition for the Everglades region. The Station is cooperating to the fullest with the U. S. Vegetable Breeding Laboratory at Charleston and annually tests and selects from numerous vegetable varieties and strains as they become available. In the vegetable industry particularly, its maintenance more than ever will require continuous plant breeding, selection and comparative trials for still better disease resis-

tance and other qualities.

Hand in hand with varietal phases there must be improvement in cultural and nutritional practices as well as of insecticides and fungicides and their application. The newer organic fungicides, insecticides and nemacides offer specialized controls not heretofore satisfactorily attained. This is exemplified in the highly satisfactory results on the late blight of potatoes and the very encouraging preliminary tests which indicate that a new control has been found for the mole cricket and the corn earworm.

Some of the minor elements have been of immense benefit to vegetable production in some areas, as manganese on the marls of the lower east coast, copper in the Everglades, and boron on celery in the Sanford district.

The program incorporating the use of minor elements has resulted in revolutionary changes in the cultural practices in the State's citrus acreage. Copper, zinc, manganese and magnesium are now regularly included among the nutritional elements supplied, with boron and iron entering where needed. This program has been responsible for the overcoming of various types of lack of thrift, together with chlorotic foliage conditions. General appearance and thrift of trees has been markedly improved and fruit yields appreciably increased without the increase in application rates of regular fertilizers. Fruit quality has been improved in texture, color, increased solids and raised Vitamin C content. The minor elements have vastly bettered tree condition, added cold resistance, increased both yield and quality and at the same time have lowered the per box production cost.

Tung oil, the latest of the tree crop introductions, will yield from

the last season's crop a gross return of nearly one million dollars. Under Florida conditions the successful culture of this tree would have been a dismal failure without the determination and supplying of its nutritional requirement for zinc.

New type wrappers for both citrus fruits and vegetables have been thoroughly tested. These offer the probability of reduction in transit losses and of improved storage and keeping quality and should shortly be available in sufficient quantity for commercial use. Definite progress also has been made in the control of citrus fruit decays developing in transit and storage.

The foregoing examples are but a limited few of the horticultural researches in Florida. A total of some 107 projects, some cooperative with the U. S. Department of Agriculture or other Federal or State agencies, are conducted on horticultural subjects at 5 stations and 7 field laboratories of the Florida Agricultural Experiment Stations. The Federal-State Frost Forecasting Service is a cooperative undertaking between the U. S. Weather Bureau and the Station. Projects on fruits, vegetables, nuts and ornamentals include the many phases in the fields of culture,

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variety and plant breeding, control of diseases and injurious insects, soils and soil fertility, economic studies, wrapping package and storage, utilization of by-products, and several types of processing. The last will be measurably increased with the availability of facilities. It is anticipated that both the experimental citrus and vegetable processing plant buildings, as provided by the last legislature, will be completed and the work under way during the coming season.

The highly complex problems of the horticulture of today require not only research in production but its extension into harvesting, handling, packing and packaging, transportation, storage, processing, marketing, economics, and utilization of by-products. This in turn has made necessary a realignment in research methods and procedure. Research workers with competent training in the several technical fields are the first essential, but the day for the most part is gone when an individual investigator operating alone can secure the whole of the wanted results even in his own field. The present trend is toward a group attack on a problem wherein the combined efforts of several highly trained specialists are cooperatively joined in a single project. For example, the services of a plant physiologist, biochemist, soils chemist, plant breeder and plant pathologist might be required and utilized to overcome a soil-borne disease or one affecting shipping or marketing of a given product. Such combinations make for much more complete and earlier results.

A great number of the problems encountered require a wide array of the highest type and most modern scientific equipment and facilities as well as a knowledge and familiarity with the required techniques. As such, there is no single agricultural science; it is a combination and application of basic physical, chemical, biological and mathematical sciences requiring both the well-equipped laboratories and the field to obtain the final practical and usable result. Much has been heard of the atomic bomb but little of other applications of atomic energy. In our laboratories, radioactivated elements are being used in animal nutrition studies, and recently similar studies with plants have been inaugurated whereby a chosen element, phosphorus for instance, can accurately be traced and measured to the millionth part as it moves or is de-

posited in the tissues. This adoption of atomic physics opens a new field in physiology and offers the probability of extending our knowledge of the role of various elements in nutrition.

Numerous recent developments have opened avenues of approach to better or different methods of production and other agricultural problems. Wartime advances in meteorology will prove of value in the advancement of dependable long-range temperature forecasting. New chemicals and equipment are assisting in pest and disease control. Tests have been made on the adaptability of the military "fog" generator as a means of applying spray materials, and a mist derived mechanically may be valuable for the same purpose. Airplane applications of dusts for insect or disease control apparently may be extended to sprays, and application from the air of fertilizer materials for suitable situations also may be extended to other than the minor elements. Air transportation is to be considered for some Florida produce, but it should not be overlooked that the airplane is a means of a quick ride, not only for man but also for unwanted pests and diseases and

possibly for some stiff market competition from areas now given little consideration.

Florida has been both wise and generous in its provision for agricultural research. The staffs of your agricultural experiment stations recognize the obligation and responsibilities imposed and will continue their efforts to the utmost in the improvement and advancement of the State's widely diversified agriculture.

FERTILIZER INDUSTRY

PLEDGES INCREASED HELP TO FARM FOOD PROGRAM

(Continued from page 4)

tion and labor, a record 13,200,000 tons of fertilizer were produced in 1945—almost 80 percent more than the 1935-39 prewar average. This has substantially helped American farmers to harvest the greatest crops in our history.

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Reports Of Our Field Men . . .

HILLSBOROUGH & PINELLAS COUNTIES

C. S. (Charlie) Little

Our summer application of fertilizer has been applied and trees are in excellent condition. The new fruit crop is growing off in fine shape and it now appears that we will have one of the best quality crops to market during the coming season that this territory has even been able to place on the market. There is nothing being left undone by the grower to assure himself that he has done the best in his effort to have quality fruit. Considering the entire territory it is our opinion that we have an excellent orange crop on all varieties and a pretty average grapefruit crop. It is true that there are many groves with an apparent light crop of common grapefruit, but it has been our observation that we are sometimes a little fooled by this variety of fruit. At any rate we are now going to state that this territory will have a very good crop of fruit on all varieties, and that it will be some of the best quality ever offered to the consuming public.

WEST CENTRAL FLORIDA E. A. (Mac) McCartney

Groves are in excellent condition and we have an excellent crop of fruit set on our trees. This statement alone should tell a complete story about how things are shaping up in this territory. To take care of this fine crop of fruit we have given our trees the best fertilizer available and to our standard mixtures we have added a complete range of secondary plant food elements that should carry the crop through until fall and make some real quality fruit. We are employing a spray program that will insure control of all insect and disease hazards so again we are guarding against anything that will mar quality. As far as the past season is concerned we cannot call it anything other than very highly successful. We received a good price for our fruit, we had a good crop and this combination means money in the bank, or a successful season. Vegetable growers in

this territory also experienced a successful season.

SOUTH POLK & HIGHLANDS COUNTIES

R. L. (Bob) Padgett

We had some awful dry weather during the spring and at times we wondered just how our fruit crop would hold on the trees. I am glad to report that through the facilities of irrigation that were available and with continuous cultivation plus what late bloom we have had since the rains started that we have a good crop of fruit. Of course there are certain properties that are not carrying a heavy crop of fruit but taking everything into consideration we are in very fine shape for the coming season as far as fruit is concerned. There are some varieties that are light but buyers are now active trying to obtain crops at very attractive prices, so if we have a light crop of certain varieties the price will be better so as far as money is concerned it makes little difference. He have completed our summer application of fertilizer and most growers are now busy with their spray machines controlling their various pests. There is considerable activity in lower Highlands County among the cattlemen in an effort to improve their pastures, and these men fully realize the importance of a well balanced program for their improved pastures.

SOUTHWEST FLORIDA (Eaves) Allison

Growing conditions over this territory have been very favorable for the past month. We have had a scattering of good rains and the groves have responded well. There is a larger crop of grapefruit showing up than was first expected and the orange crop for next year is very good indeed. There is some bloom in evidence at this time and those trees which either skipped blooming in the spring or lost their crop due to weather hazards are having another chance now. Most summer fertilizer programs have already been carried out and the few who are running

late will finish very early in July. Many growers are planning a light August application of top dresser and we think this very beneficial. Where this practice is in effect it should be done during the early part of the month. Taking the territory as a whole it is safe to say that the vegetable growers even under adverse conditions had a profitable season.

NORTH CENTRAL FLORIDA V. E. (Val) Bourland

We have just completed a very successful season. When we say successful we mean that fruit prices during the past season have been very satisfactory and that we have a nice crop of fruit set for the coming season. There is no question but what there will be a light crop of common grapefruit, but all other varieties are setting a nice crop that is now growing off into very fine quality. There continues to be a large acreage of new plantings and an additional acreage would now be set if there were available trees. Vegetable growers had a most successful season in this territory and are already making plans for their fall plantings. Watermelon growers had both a good and bad year. Some growers that had melons on the early market made money, but others that had their crops come in a little late were not so successful. We have never seen watermelon vines deteriorate so fast as they did this season.

POLK COUNTY J. M. (Jim) Sample

Due to the hazards of weather such as droughts and hurricanes it was difficult to state at this time last year just how we would come out financially in the marketing of the fruit crop during the season just ended. However, I am very glad to report that practically every grower in this section can look back over the season and call it successful. We have finished our summer application of fertilizer and groves are in excellent condition. In fact we cannot recall any period in the past when groves looked better than they do at this time. We have an excellent crop of oranges, a good crop of Marsh grapefruit but set of common grapefruit is light.

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From all sections of citrus and vegetable producin' areas of Florida, growers are sayin' that they are satisfied with their financial success durin' the past growin' season. However, they all has complaints to offer about the difficulty in obtainin' just what they needed—from machinery to fertilizer, but in the final analysis they agree that they have been given the best service possible to render by all concerns supplyin' their needs. It is this wholehearted cooperation by all concerned that made it possible for Florida growers to supply a large portion of the winter vegetables and fruits, not only for this nation but many other parts of the world.

The inflationary situation in farm real estate is becomin' serious, and accordin' to the United States Department of Agriculture, the March 1, 1946, figures that average farm land prices in the Continental U. S. A. is up seventy-one percent over pre-World War II, 1935-1939 average. The increase compares with a seventy percent rise from pre-World War I, 1912-1914 average to the 1920 inflation peak which follered World War I. More than one-quarter of the increases durin' the present period of inflation occurred durin' the past year, and the inflationary situation has become especially serious durin' recent months.

We all have been of the opinion that DDT is a discovery by scientists of recent date but it was actually discovered by a Swiss firm in 1874.

Vegetable production in 1945 was a record level fer both tonnage and dollar value and prices held up remarkably well. The 1946 season shows, thus far, sustained production but some decline in prices and great decline in gross dollar returns. We have our job cut out fer us to produce all the feed that can be used to advantage, thus freeing all exportable food fer other lands. We need to look out however fer oversupply situations which are likely to vary by crops, seasons and regions.

The 1946-1947 season will see one of the finest crops of quality fruit placed on the market that Florida has ever offered the consumin' public.

Uncle Bill

Dade County In The Florida Citrus Picture . . .

By The Editor

This writer has been privileged to read a thesis entitled "Dade County and the Citrus Industry of the State of Florida," written in 1939 by Miss Lillian Evelyn Rosser, now a teacher in the public schools of Bartow, Florida.

The paper is largely historical, dealing with the growth and development of the citrus industry of the state from the time it became commercially important up to and including the year 1939. A number of tables and graphs show the amount of production, the cost of development, the methods of distribution and kindred features of the industry which, while they now no longer apply, serve as a reminder of conditions as they existed in the industry only a few short years ago.

Covering the period from the early eighteen-sixties down to 1939, the paper enters into every phase of the industry in the state as a whole, with particular emphasis on its development in Dade county. Pointing out that as late as 1889 most citrus plantings were close to rivers or to the Atlantic coast and were located in territory now comprising Duval, St. Johns, Volusia, Putnam, Alachua and Marion counties, the writer follows the movement of the industry to more southerly locations following the destructive freezes of 1886, 1894, 1895 and 1899, when most of the trees in that northern territory were destroyed.

By gradual degrees the old plantings were abandoned and new groves were set out, principally in the "Ridge" section of the state or along the Atlantic and Gulf coasts opposite the central "Ridge" area and eventually further south to the Dade county region. Producing only eight-tenths of one percent of the total citrus crop of the state, Dade county yet holds an important place in the industry. By reason of its southerly location, freedom from frost injury and general climatic conditions, the fruit of Dade county groves is among the first to mature and reach northern markets while the early demand is at its height. However, as the author points out, the great bulk

of fruit grown in Dade county is either used for local consumption or sold from roadside stands or city markets to supply the tourist trade.

The extremely heavy annual rainfall, approximately sixty inches per year, in the Miami, Fort Lauderdale and Homestead sections, is another important factor in the production of citrus fruits in Dade county, that being the heaviest precipitation in any portion of the state. Periods of extended drought are not unknown but are extremely rare. The greatest drawback to the industry in Dade county has been the occurrence of hurricanes which have at times resulted in great damage to the groves.

But while the rainfall is extremely heavy, it is also true that the percentage of sunshine is exceeded only in Arizona, New Mexico and extreme Southern California—

and sunshine is one of the necessary elements in the production of high quality citrus fruit.

One of the first, if not the very first, citrus groves in the Homestead section, according to the author, was made by Mr. Dan Roberts in 1904, bringing his fruit stock from his old home in Volusia county, from a few trees which had survived the freeze of 1899. He also established the first citrus nursery near Cutler, between Miami and Homestead. During the

(Continued on next page)

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Lockwood Expresses Confidence In The Fertilizer Picture

Confidence that Americans will display "intelligent unselfishness" in sharing fertilizer supplies with less fortunate peoples abroad was voiced by Maurice H. Lockwood, Chairman of the Board and President-elect of The National Fertilizer Association in his address before the organization's 21st annual convention. "Food needs are so great," said Lockwood, "that as a 'have' nation we shall be called upon to share our fertilizer supplies."

Lockwood also called upon fertilizer industry leaders for "cool reasoning and calm judgment" in attempting to adjust themselves to problems of distribution within this country. "Certainly we are equal to such a test of industry statesmanship," he said, "even though it will at times try our tempers and call upon us for tolerance and understanding."

While recognizing that emergency conditions have caused limited fertilizer shortages in certain areas. Lockwood ventured the prediction that the 1945-46 production year will witness a new record output of 13,860,000 tons, a five percent increase over the preceding year.

"No one need apologize for such a record," declared Mr. Lockwood. "Of course not all demand has been filled in all areas. The difference between supply and demand is not great, however, and future requirements will be filled just as rapidly as construction and conversion will permit us to create or adapt facilities to the needs. Anyone acquainted with the problems involved in trying to build and equip manufacturing facilities knows only too well how slowly such work may be completed under present conditions and at what elevated costs. In spite of this we may rest assured that the spirit of enterprise is alive and responsive in our industry. The western and midwestern areas are particularly active in initiating such projects, and the older fertilizer using areas of the east and south are re-equipping and supplementing their production, blending and distribution facilities much more rapidly than is commonly appreciated."

DADE COUNTY IN THE FLORIDA CITRUS PICTURE

same year, Mr. Roberts set out a grove for the late W. J. Krome, who later became one of the leading fruitmen of the state. This was the first citrus grove in what is now known as the Redlands district.

The equable, sub-tropical climate of Dade county is peculiarly adapted to the production of Persian limes and the acreage of this fruit had been greatly expanded during the

years just preceding the preparation of Miss Rosser's paper.

The thesis contains much interesting and extremely valuable data. It gives evidence of great study, careful investigation and painstaking preparation. It merits a high place in the archives of the industry.

The local canning center canned 2,680 containers of fruits and vegetables during the past month, according to Miss Louise Taylor, Broward County home agent.



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FLORIDA REPRESENTATIVES: { W. M. Palmer, Ocala; Phone—261
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Board contributes funds for tristeza investigation

The Florida State Plant Board agreed last week to put \$20,000 into a cooperative plan with the State of Texas and the Florida Citrus Commission to send a staff of scientists to South America for study of tristeza, a mysterious citrus disease.

The board acted after receiving an opinion from Attorney General Tom Watson that the expenditure for research in a foreign nation is authorized by state law. Chairman J. Thomas Gurney said he hoped to have the plan under way by next month.

Tristeza is a disease which during the past three years has destroyed orange groves over a wide area of Argentina, Uruguay and Brazil. Scientists have been unable to learn its cause or a means of preventing its spread.

The State of Texas agreed to match the Florida allotment for conducting the study, and the Florida Citrus Commission has tentatively offered to put another \$20,000 into the venture.

PINELLAS CITRUS IN GOOD SHAPE, COUNTY AGENT REPORTS

Pinellas County's citrus is in very good condition, according to County Agent J. H. Logan. A fine crop is on the trees for the coming season. Growers are using fertilizer with secondary elements, spraying with nutritional sprays, and generally taking better care of their groves than in past years.

LAKE TREES SET GOOD CITRUS CROPS; MELON SEASON SATISFACTORY

Lake County growers are generally well pleased with the good crops of fruit their trees have set, according to County Agent R. E. Norris. "Growing conditions have been good, and most citrus trees are in excellent condition," he said.

Despite heavy rainfall in May, Lake's watermelon season was satisfactory to most growers, with fairly good yields and satisfactory prices. About 1,800 cars were ship-

ped during the season which ended early this month.

Spring crops of okra, sweet corn, and other fresh vegetables produced for local markets brought satisfactory prices, but tomatoes, yields of which were very good, were a disappointment to growers because of unsatisfactory prices, Mr. Norris said.

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FOR SALE—International truck, short wheel base, with May-Cobb Distributor mounted on it \$750.00, sprockets 11 to 25. WAVERLY GROWERS COOPERATIVE. Waverly, Florida.

WANTED TO BUY — REAL ESTATE — My wife and I desire ten (10) acres or more citrus grove plus additional acreage and home or homesite. Immediate possession not required. Furnish full particulars. Cash or mortgage as you desire. N. W. Openheim 155 Humes Place, Memphis 11, Tenn.

ON THE RIDGE Polk County bearing grove—7 acres of bearing grapefruit, Pineapple and Valencia oranges, nice crop on trees now. Warm zone, 158 acres range land $\frac{1}{4}$ mile lake frontage, \$12,750.

I CAN SELL YOUR Citrus grove. I have buyers waiting. Send me a full description and price.

DONALD S. RUFF
3319 San Pedro, Tampa, Florida

FOR SALE—International truck, long wheel base, flat body, \$500.00. WAVERLY GROWERS COOPERATIVE. Waverly, Florida.

BIG CITRUS GROVE FOR SALE, heavy producer, several varieties oranges and grapefruit, well located near railroad siding, fertile soil, good frost protection. Reasonably priced. For sale by Charlton & Associates, Valuation Engineers and Realty Appraisers, Ft. Lauderdale, Fla.

CITRUS TREES—Best quality usual varieties on sour orange or rough lemon stock. Robt. P. Thornton, c/o Clay Hill Nurseries Co., Box 2880, Tampa, Florida.

IMPROVED JEWEL PEACH TREES—Bud wood selection from outstanding trees in our commercial producing orchards. Limited production of trees requires sale on reservation only. All reservation orders received up to June 1st, 1946 accepted for January-February 1947 delivery. Clay Hill Nurseries Co. P. O. Box 2880, Tampa, Florida.

NOW BOOKING orders for raising citrus trees on sour or lemon stock. John Grieshop Nursery, San Antonio, Florida.

FOR SALE—Speed Sprayer with both single and double head \$1,800—in use daily. WAVERLY GROWERS COOPERATIVE. Waverly, Florida.

COMPLETE Packing House equipment for sale. Two car load capacity. N. E. McConaghay, Satsuma, Alabama.

FOR SALE—Speed Sprayer with new engine and radiator; both heads: first-class shape. Waverly Growers Cooperative.

FOR SALE—One Farquhar high pressure sprayer. This machine has been mounted on a $1\frac{1}{2}$ ton truck, has large wooden tank, high pressure Fairbank-Morse pump, driven by a 20 HP Noro engine. Has been used a very few hours.—R. C. Carlisle, Sneads, Florida.

FOR SALE BY RETIRING OWNER—20 Acre, 14 year old citrus grove of Valencia and Temple oranges and Marsh Seedless grapefruit. Located on paved road in the heart of the famous Indian River citrus section. Has excellent drainage and good artesian well. Average returns for past two years \$9000.00. Purchase price \$1500.00 per acre. For further particulars communicate with owner, Alfred Warren, Route 1, Box 212 Vero Beach, Florida. Phone 4662.